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(54) **Title:** A SCREENING ARRANGEMENT COMPRISING A CARTRIDGE AND A PARALLEL GUIDANCE CORD SYSTEM

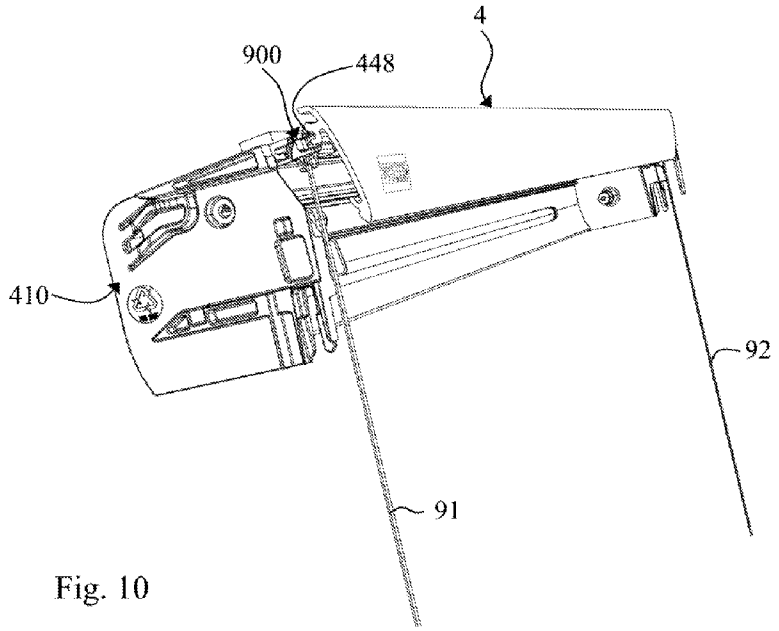


Fig. 10

(57) **Abstract:** The screening arrangement (1) comprises a top element (4), and a parallel guidance cord system comprising a set of cords (91, 92). A set of cartridges (900) is provided and each cartridge (900) comprises means for engagement with one end of a respective cord (91, 92). The set of cartridges (900) is adapted for accommodation inside the top element (4) by sliding engagement with a track (448) in the top element (4).

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# A screening arrangement comprising a cartridge and a parallel guidance cord system

The present invention relates to a screening arrangement comprising: a top element, a bottom element, a screening body, and a parallel guidance cord system comprising a set of cords, each cord having two ends, said screening arrangement having a supply condition and a condition of use.

The purpose of the cord system is to ensure parallelism between the top element and the bottom element when the screening element is placed in different positions in the frame to be screened. To the extent possible the system also ensures parallel guidance during operation.

The assembly of the screening arrangement to obtain a supply condition and the subsequent mounting to obtain the condition of use may demand considerable resources. This is, i.a., due to the fact that the cords during the assembly step have to be guided along, threaded through and fastened to different parts of the screening arrangement, all of these operations being relatively cumbersome and labour-intensive. Furthermore, during the mounting step, the cords have to be connected at diametrically opposite corners of the frame opening. This may be performed by connecting the cords to the top element during assembly of the screening arrangement, the opposite ends of the cords being then connected to the opposite frame corner by means of brackets during mounting to attain the condition of use. Alternatively, the cords are provided separately or connected to the bottom element only, in which case also the cord ends near the top element are connected to the frame pieces as well, for instance by means of brackets, or to the top element itself during the mounting procedure.

One example of an arrangement attempting at alleviating these inconveniences is disclosed in Applicant's international published application No. WO 98/32944.

With this background it is an object of the present invention to provide a screening arrangement in which the assembly and mounting of the screening arrangement is facilitated.

This and further objects are met by the provision of a screening arrangement of the kind mentioned in the introduction which is furthermore characterized in that the screening arrangement is provided with a set of cartridges, each cartridge comprising means for engagement with one end of a respective cord, and that each cartridge of said set of cartridges is adapted for sliding engagement with a track inside the top element, said set of cartridges being accommodated inside the top element in the supply condition.

The assembly is facilitated to a considerable extent, as the cord may very easily be connected to the cartridge outside the top element during assembly of the screening arrangement, following which the cartridge and the cord engaged therewith is slid into the track inside the top element. In this manner, the cord end is safely retained within the top element in the supply condition, without any risk of a consumer interfering with the cord ends, or of the cords being misplaced or not correctly mounted.

The cartridges may be accommodated in the top element in a permanent manner. Preferably, however, the sliding engagement between each cartridge and said track is releasable. This makes it possible to withdraw the cartridges from the top element, for instance for maintenance or exchange purposes.

One particularly simple manner of providing the releasable engagement is by forming each cartridge with a shoulder portion for abutment against a corresponding portion or part of the top element.

In a preferred embodiment, the screening arrangement comprises a set of separate springs, and each cartridge is provided with means for holding a spring. The provision of the separate springs provides for an easy and flexible assembly of the screening arrangement. Furthermore, the parallel guidance system may be made to custom, in accordance with the particularities and the intended field of use of the screening arrangement. For instance, some kinds of screening arrangements may necessitate the use of stiffer springs.

Preferably, each spring is a tension spring having a first end and a second end, said means for engagement with one end of said cord be-

ing provided by the first end of the spring.

The holding means for holding the spring on the cartridge preferably comprise a stub portion for holding the second end of said spring and at least one guidance portion for guiding the spring between the first and second ends.

The cartridge may, in principle, have any suitable dimensions, as long as it may be slid into the track inside the top element. Preferably, the length of the cartridge exceeds the length of the spring in its extended condition.

In order to secure the retention of the cord on the cartridge during assembly, the cartridge preferably has an opening for the passage of the cord, said opening having a mouth of smaller dimensions than those of the cord.

In a further aspect of the invention, a parallel guidance cord system is provided, said parallel guidance cord system comprising a set of cords, each cord having two ends. The parallel guidance cord system is characterized in that each cord is provided with a first cord end retainer adapted to engage with engagement means of a cartridge of a set of cartridges. By forming each cord with a cord end retainer at one end, assembly of the accompanying screening arrangement is facilitated to a considerable extent. This is due to the fact that the cord end retainer functions as a needle when passing the cord through and along the relevant parts of the screening arrangement. Furthermore, the cords may very easily be connected to the cartridges, which may, for instance, be accommodated inside the top element of the screening arrangement in the supply condition.

The first cord end retainer may be formed integrally with said cord, preferably by moulding. This provides for a simple fastening requiring no assembly between the cord and the retainer following the initial step of integrally forming the retainer on the cord.

Alternatively, the first cord end retainer is connected mechanically to the cord.

The engagement means may in principle be formed in any suitable manner, as long as a quick and reliable connection between the

cord and the cartridge is established. Preferably, however, the first cord end retainer comprises a hook portion for engagement with the first end of a spring of each cartridge.

The assembly is particularly simple in an embodiment, in which the first cord end retainer comprises an introduction portion protruding beyond said hook portion.

Furthermore, the first cord end retainer may comprise a grip portion, which facilitates the assembly even further. In a further development of this embodiment, wherein the first cord end retainer is formed integrally with the cord by moulding, the grip portion further includes a plurality of flanges interlinked by squeeze portions, said squeeze portions having preferably smaller thickness than the dimension of the cord. This configuration enhances the retention of the cord end in the retainer, i.e. the force required to withdraw the cord from the retainer is relatively large. To the least, the required force should of course exceed the forces during assembly and normal use of the screening arrangement, and may by this configuration be several times larger than the lowest necessary level.

The mounting of a screening arrangement by means of the parallel guidance cord system according to the invention is facilitated even further in an embodiment, in which the cord is provided with a second cord end retainer adapted to engage with a bracket.

The second cord end retainer may have any suitable design but is preferably substantially T-shaped.

In the following the invention will be described in further detail by means of examples of embodiments with reference to the schematic drawings, in which

Fig. 1 is a perspective view of a screening arrangement in an embodiment of the invention;

Fig. 2 is a perspective view of a window provided with a screening arrangement in an embodiment of the invention;

Fig. 3 shows a perspective view of a detail of the screening arrangement in an embodiment of the invention;

Fig. 4 shows, on a larger scale, a partial perspective view of the

window shown in Fig. 2;

Fig. 5 shows, on a still larger scale, a partial perspective view of a detail of the screening arrangement in an embodiment of the invention;

Figs 6 and 7 show perspective views of parts of the detail shown in Fig. 5;

Fig. 8 shows, on a larger scale, a partial perspective view of the screening arrangement detail of Fig. 3;

Figs 9 and 10 show, on a larger scale, a partial perspective view of the screening arrangement detail of Fig. 3, seen slightly from below and from the side, respectively;

Fig. 11 shows, on a still larger scale, a partial perspective view of a detail of the screening arrangement in an embodiment of the invention;

Fig. 12 shows a view corresponding to Fig. 11 but from another angle;

Figs 13 to 15 show perspective views of parts of the screening arrangement detail of Figs 11 and 12; and

Fig. 16 shows a perspective view corresponding to Fig. 15 of an alternative embodiment of the detail shown in Fig. 15.

Figs 1 and 2 show an embodiment of a screening arrangement generally designated 1. As shown in Fig. 2, the screening arrangement is adapted to be mounted on a frame constituted by a sash 2 representing a window. The sash 2, in turn, is adapted to be connected with a stationary frame (not shown), which in a mounted position of the window lines an opening in a building. It is noted that the term "frame" is to be understood as incorporating any substantially rectangular structure positioned in any opening in a building, whether in a wall or the roof, and surrounding an aperture to be screened. Although the sash shown in Fig. 1 is the sash of a roof window and the screening arrangement 1 is mounted on the sash 2 of the window, a screening arrangement according to the invention may just as well be mounted on the stationary frame instead of the sash and may also be utilized in connection with e.g. windows having a frame only, or in doors.

A full description of a screening arrangement of this kind is found in Applicant's co-pending international application No. PCT/DK2007/050049, the contents of which are incorporated herein by reference. However, aspects relating to the present invention will be described in full detail below.

In the embodiment shown, the screening arrangement 1 comprises a top element 4 adapted to be positioned at the sash top piece 21, a screening body 6 and a bottom element 7. At its upper end edge, the screening body 6 is accommodated in the top element 4 and its opposed, lower end edge is fastened to the bottom element 7. In the embodiment shown, the bottom element 7 is adapted to act as a handle during operation of the screening arrangement 1, i.e. when moving the bottom element 7 and hence the screening body 6 between the non-screening position and a screening position, in which the screening body 6 covers the sash aperture partly or fully. However, instead of being manually operated, the screening arrangement may be operated by other means, e.g. by electrical operating means.

From Fig. 1 it may be seen that the top element 4 has a left-hand end piece 410 and a right-hand end piece (not shown). The terms "left-hand" and "right-hand" refer to the orientation shown in for instance Figs 1 and 2 and are utilized for reasons of convenience only. Similarly, the terms "front" and "back" are utilized to denote the sides of the screening arrangement, "front" being the side intended to face inwards into the room of the building, and "back" the outwards facing side. A number of further functions may be built into the end pieces, however, they will not be described in further detail in the present application. One of the most important of these functions is that the end piece 410 comprises portions constituting coupling means for cooperation with bracket members positioned on the side piece 23 of the window sash 2.

The top element 4 comprises a cover 430 extending almost throughout the entire length of the top element 4 from the left-hand end piece 410 to the right-hand end piece, the end pieces thus constituting the end faces of the top element 4. At the side intended to face inwards into the room, i.e. the front side, the cover 430 is connected to a top rail

440. In the embodiment shown, the connection between the top rail 440 and the remaining portion of the top element, i.e. the cover 430 is made integral, e.g. by extruding the top element as a profile including the cover 430 as well as the top rail 440. The end piece 410 is fastened to the cover 430 by means of e.g. a screw. The top rail 440 has a slightly longer extension in the longitudinal direction than the cover portion 430. In the present embodiment, the top element 4 accommodates a guide bar and a roller bar (not visible). The screening body 6 is fastened to the roller bar along its upper end edge in any suitable manner known *per se*. The guide bar guides the screening body 6 onto the roller bar, which serves to collect and store the screening body 6 in the non-screening and partially screened positions of the screening arrangement, or even in the fully screened position, in case the screening body contains surplus material. The screening body is wound in mutually opposite directions on the roller bar and the guide bar. As a consequence, the side of the screening body 6 facing inwards in the screening positions, i.e. the front side facing towards the room in the position of use of the screening arrangement, faces inwards when stored on the roller bar and, hence, the back side faces outwards on the roller bar.

The bottom element 7 has a general U-shape, the legs of the U extending integrally into the top and bottom edges 71 and 72, respectively, a finger grip 73 being provided by said U-shape. In the embodiment shown, it is possible to obtain a non-screening position, in which the U-shape is situated immediately below the guide bar and immediately in front of the front portion of the screening body 6 stored on the roller bar. Hence, a slight overlap between the lower edge of the top rail 440 and the top edge 71 occurs, for instance in the interval 1-10 mm. The ends of the bottom element 7 are advantageously guided in the side rails as well, preferably by means of side guidance elements 700 to be described in further detail below.

In the mounted position of the screening arrangement, cf. Fig. 2, the top rail 440 is joined to side rails 8, 9 in mitre joints by means of angular brackets 85. To that end the top rail 440 has two mitred ends, of which one mitred end 445 is indicated in Fig. 1 to be joined to a respec-

tive mitred end of the side rails. In the condition of use of the screening arrangement 1, opposite ends of the bottom element 7 and opposite side edges of the screening body 6 are guided in these side rails 8 and 9. In the embodiment shown, the screening arrangement comprises a roller blind having as its screening body 6 a cloth or fabric, and of which the top element 4 includes a spring-biased roller bar. However, other screening arrangements having other kinds of screening bodies and other configurations of the top element are conceivable as well. The side edges of the screening body 6 are guided in the side rails 8, 9 in a manner known *per se*, for instance by means of a number of guide beads mounted at a distance from each other along each side edge. Hence, the side rails 8, 9 serve the purpose of improving the light-proofing properties of the screening arrangement, as they overlap the side edges of the screening body in the mounted position of the screening arrangement. Eventually, depending on the type of screening body and the installation situation, the side rails may contribute to holding the screening body in position. The bottom edge of the screening body 6 is connected with the bottom element 7 in any suitable manner.

Eventually, the screening arrangement comprises a parallel guidance cord system comprising two cords 91 and 92. As is clearly visible in Figs 2 and 3, one cord 91 is adapted to extend from the right-hand lower corner of the sash, up through or along the bottom element 7 and further up to the top element 4. The other cord 92 is routed in a mirror-inverted manner. At the top element 4, each cord is connected with a respective pre-tensioning device adapted to be connected with the top element 4 in a manner to be described in further detail below. The pre-tensioning devices entail that the cords are held at a suitable tension all of the time, thereby ensuring that the bottom element 7 is at all times kept substantially in parallel with the top and bottom pieces 21, 22 of the sash 2 during operation of the screening arrangement. In the mounted position, the cords are hidden behind the side rails 8, 9.

In the embodiment shown the cords 91, 92 are connected to a respective bracket at the lower end of the sash 2 as will now be described with particular reference to Figs 4 to 7. The cord 91 has at its

one end, viz. its second end, a cord end retainer 95. The cord end retainer 95 is substantially T-shaped and is accommodated in a fitting 10 to be described further on during sale and transportation, i.e. in the supply condition of the screening arrangement. In the condition of use, however, shown in Fig. 4, the retainer 95 is placed in an opening 93a in the bracket 93. Furthermore, it may be seen that the bracket 93 has a leg 93b securing correct positioning with respect to the sash 2.

Referring now in particular to Fig. 8 it may be seen that the cords 91, 92 are guided through the side guidance element 700 connected to the bottom element 7, namely cord 91 through opening 702 near the upper edge 701, and cord 92 through opening 703. At the opposite end of the bottom element 7 the cords are guided reversely.

Turning now to Figs 9 to 16, the pre-tensioning devices of the cords will be described in detail. The screening arrangement 1 is provided with a set of cartridges 900, of which the left-hand one will be described in the following. Corresponding considerations apply to the other cartridge for accommodation in the opposite end of the top element 4. It is noted that in Figs 9 and 10, some details normally positioned in the top element 4 have been removed for the sake of clarity.

As shown in Figs 9 and 10 the cartridge 900 is accommodated inside the top element 4 in the supply condition and mounted condition, namely in a track 448 in the cover 430 of the top element 4. Preferably, the accommodation is releasable, i.e. the cartridge 900 may be removed from the top element 4 without destruction of either part. For instance, the cartridge 900 may be slidingly engageable with the track 448 positioned inside the top element 4. In order to keep the cartridge 900 safely in the track, each cartridge 900 comprises, in the embodiment shown, a shoulder portion 901 for abutment against the left-hand end piece 410.

The cartridge 900 comprises means for engagement with one end of cord 91. Furthermore, as the screening arrangement comprises a set of separate springs, each cartridge 900 is provided with means for holding a spring 910 of the set. In the embodiment shown, each spring 910 is a tension spring having a first end 910a and a second end 910b. The means for engagement with one end of the cord 91 is provided by

the first end 910a of the spring 910 being shaped as an eye. The means for holding the spring 910 comprise a stub portion 902, over which the eye of the second end 910b of said spring 910 is placed. Eventually, there is a guidance portion 903 for guiding the spring 910 between the first and second ends 910a, 910b. The guidance portion 903 secures the spring 910 during assembly, before the cord 91 has been connected to the spring 910, and during the movement of the spring 910 when the screening arrangement is operated. In order to accommodate the movement of the spring, the length of the cartridge 900 exceeds the length of the spring 910 in its extended condition. Furthermore, the cartridge 900 has an opening 904 for the passage of the cord 91, the opening having a mouth of smaller dimensions than those of the cord 91. in this manner, it is obtained that the cord 91 is held safely in the opening 904 during normal use but may still be withdrawn from the cartridge 900.

Conversely, cord 91 is provided with a first cord end retainer 96 adapted to engage with the engagement means of the cartridge 900. In the embodiment shown, these engagement means are, as mentioned, constituted by the eye-shaped first end 910a of the spring 910. To assist in the engagement between the cord 91 and the retainer 96 on one hand and the spring 910 on the other, the retainer 96 comprises an introduction portion 96b and a portion comprising a number of flanges 96c. By gripping the cord retainer 96 by the portion comprising the flanges 96c and moving the retainer 96 with the introduction portion 96b into the spring 910, a positive engagement between the hook portion 96a and the eye-shaped first end 910a of the spring is obtained. The first cord end retainer 96 may be connected with the cord 91 in any suitable manner but is preferably formed integrally with the cord 91, for instance by moulding. In the embodiment, in which the retainer 96 is moulded on the cord 91, the flanges 96c has the additional function of securing retention of the cord inside the retainer 96. When moulding the retainer 96 onto the cord 91, the material of the retainer shrinks as the temperature of the material is reduced during the cooling off phase. This entails that the material of the retainer is tightened around the cord 91 in a squeez-

ing motion and a secure connection between these two parts is obtained. Furthermore, in the case of moulding the retainer 96 in the configuration shown in the drawings, i.e. with a number of flanges 96c with a spacing between them, the cord 91 is squeezed slightly in the area of the flanges. This, in turn, increases the security against unintended release of the cord from the retainer even further. The effect of the squeezing is increased by the number of flanges 96c.

In the alternative embodiment shown in Fig. 16, elements having the same or analogous function as elements in Fig. 15 carry the same reference numerals to which 100 has been added. The connection between the cord 191 and the cord end retainer 196 is carried out as a mechanical connection. To this end, the cord 191 has at its end an enlargement 191a, for instance formed as a local thickening or simply a knot. The retainer 196 has a key hole-shaped track 196b, the enlargement 191a fitting into the larger section of the key hole-shaped track. Once the cord has been introduced into the track, the cord may not be withdrawn from the track in any other way than guiding it past the larger section. This movement does not normally occur during assembly and operation of the screening arrangement. The hook portion 196a may also be formed differently than its counterpart in Fig. 15, viz. as a bent-over portion of a rod-like element.

As shown in Fig. 13, the cartridge comprises further openings 906 and 907. Opening 907 is made primarily with due regard to the manufacturing conditions, but is also of help during assembly as it may be ascertained that the spring 910 is positioned correctly. Opening 906 serves to guide the cord 91 from upstanding portion 905 near the end of the cartridge 900 to the spring 910, the retainer 96 being threadable through for instance the opening 906.

In Fig. 1 the screening arrangement 1 is shown in a supply condition attained at the manufacturer and indicating the condition or state, in which the screening arrangement is supplied and delivered. In the supply condition, a set of angular brackets 85 is connected to the top rail 440 of the top element 4. This operation is advantageously carried out by a suitable tool to secure that the angular brackets assume correct po-

sitions. The bottom element 7 is fixed in a predetermined distance from the top element 4 by means of two fittings 10. In the embodiment shown the fittings are identical to each other, and reference will only be made to the left-hand fitting 10 in Fig. 1. The parallel guidance cord system including cords 91, 92 are connected to the other parts of the screening arrangement. That is, the cords 91, 92 are guided through the side guidance element 700 connected to the bottom element 7, namely cord 91 through opening 702 near the upper edge 701, and cord 92 through opening 703. During this step, the first cord end retainer 96 acts as a needle, which is threaded through the openings in the side guidance element 700. The other cord end retainer 95 is kept in place and ensures that the cords are not withdrawn from the side guidance element 700 once they have been threaded. The cords 91, 92 are connected to the respective cartridge 900, which is subsequently slid into engagement with the track 448 inside the top element 4. Finally, the cords 91, 92 of the parallel guidance cord system are tightened and secured in the fittings 10 as will be described further below.

Installation of the entire screening arrangement 1 in a frame, for instance the sash 2 of Fig. 2, is carried out in the following manner:

The screening arrangement 1 is provided in its supply condition shown in Fig. 1. At the installation site, the top element 4 is connected to the frame, i.e. for example the sash 2. In the embodiment described in the above, this is thus carried out by guiding the coupling members on the outer side of each end piece 410 over bracket members positioned at the upper ends of each sash side piece. A bracket 93, 94 is fastened to the each of the side pieces 23, 24, near the bottom piece 22. In Figs 2 and 4, the bracket 93 of the right-hand side piece 24 is shown. Following this, the side rails 8, 9 are joined to the top rail 440 at the mitred ends by means of the angular brackets 85. A more detailed description of the manner of mounting the screening arrangement is disclosed in Applicant's co-pending international application No. PCT/DK2007/050047, the contents of which are incorporated herein by reference.

In the step of joining the side rails to the top rail, each side rail

is brought from a position, in which the side rail is out of alignment with the second longitudinal direction, to a position, in which the side rails is in alignment with the second longitudinal direction, during the step of connecting the side rails to the top rail. During this step, the bottom element 7 and consequently the side guidance element 700 are kept substantially stationary by means of the fittings 10. The side guidance element 700 thus abuts slightly on the back side of the angular bracket 85. All through the above operations the fittings 10 hold the bottom element 7 at its predetermined distance from the top rail 440 of the top element 4. The cords 91, 92 of the cord system are also kept tight on the fittings 10, in the embodiment shown by means of T-shaped cord retainers 95.

Only when the side rails 8 and 9 have been secured to their respective side piece, the cords are let loose. The free end of each cord 91, 92, i.e. for instance the cord 91 carrying at one end the lower end cord retainer 95, is connected to the respective bracket 93, 94 near the sash bottom piece. Eventually, the engagement between the fitting 10 and the bottom element 7 is released. Following this, also the engagement between the fitting 10 and the top element 4 is released. Now, the screening arrangement is in its condition of use. Slight deviations of the above described mounting procedure may, of course, occur.

The invention should not be regarded as being limited to the described embodiments. Several modifications and combinations of the different embodiments will be apparent to the person skilled in the art.

# P A T E N T C L A I M S

1. A screening arrangement (1) comprising:

a top element (4),

a bottom element (7),

a screening body (6), and

a parallel guidance cord system comprising a set of cords (91, 92), each cord having two ends,

said screening arrangement having a supply condition and a condition of use,

c h a r a c t e r i z e d in that

the screening arrangement is provided with a set of cartridges (900), each cartridge (900) comprising means for engagement with one end of a respective cord (91, 92), and that each cartridge of said set of cartridges (900) is adapted for sliding engagement with a track (448) inside the top element (4), said set of cartridges (900) being accommodated inside the top element (4) in the supply condition.

2. A screening arrangement according to claim 1, wherein the sliding engagement between each cartridge (900) and said track (448) is releasable.

3. A screening arrangement according to claim 2, wherein each cartridge (900) comprises a shoulder portion (901) for abutment against a corresponding portion or part of the top element (4).

4. A screening arrangement according to any one of the preceding claims, wherein the screening arrangement comprises a set of separate springs (910), and wherein each cartridge (900) is provided with means for holding a spring (910).

5. A screening arrangement according to claim 4, wherein each spring (910) is a tension spring having a first end (910a) and a second end (910b), said means for engagement with one end of said cord (91) being provided by the first end (910a) of the spring (910).

6. A screening arrangement according to claim 5, wherein said holding means comprise a stub portion (902) for holding the second end (910b) of said spring (910) and at least one guidance portion (903) for guiding the spring (910) between the first and second ends (910a,

910b).

7. A screening arrangement according to any one of claims 4 to 6, wherein the length of the cartridge (900) exceeds the length of the spring (910) in its extended condition.

8. A screening arrangement according to any one of the preceding claims, wherein the cartridge (900) has an opening (904) for the passage of the cord (91), said opening having a mouth of smaller dimensions than those of the cord (91).

9. A parallel guidance cord system comprising a set of cords (91, 92), each cord having two ends,

c h a r a c t e r i z e d in that each cord (91) is provided with a first cord end retainer (96) adapted to engage with engagement means of a cartridge (900) of a set of cartridges (900).

10. A parallel guidance cord system according to claim 9, wherein said first cord end retainer (96) is formed integrally with said cord (91), preferably by moulding.

11. A parallel guidance cord system according to claim 9, wherein said first cord end retainer (196) is connected mechanically to the cord (191).

12. A parallel guidance cord system according to any of claims 9 to 11, wherein said first cord end retainer (96) comprises a hook portion (96a) for engagement with the first end (910a) of a spring (910) of each cartridge (900).

13. A parallel guidance cord system according to claim 12, wherein said first cord end retainer (96) comprises an introduction portion (96b) protruding beyond said hook portion (96a).

14. A parallel guidance cord system according to any one of claims 11 to 13, wherein said first cord end retainer (96) comprises a grip portion (96c).

15. A parallel guidance cord system according to claim 14, wherein the first cord end retainer (96) is formed integrally with the cord by moulding, the grip portion (96c) including a plurality of flanges (96d) interlinked by squeeze portions (96e), said squeeze portions (96e) having preferably smaller thickness than the dimension of the cord.

16. A parallel guidance cord system according to any one of claims 9 to 15, wherein each cord (91) is provided with a second cord end retainer (95) adapted to engage with a bracket (93).

17. A parallel guidance cord system according to claim 16, wherein said second cord end retainer (95) is substantially T-shaped.

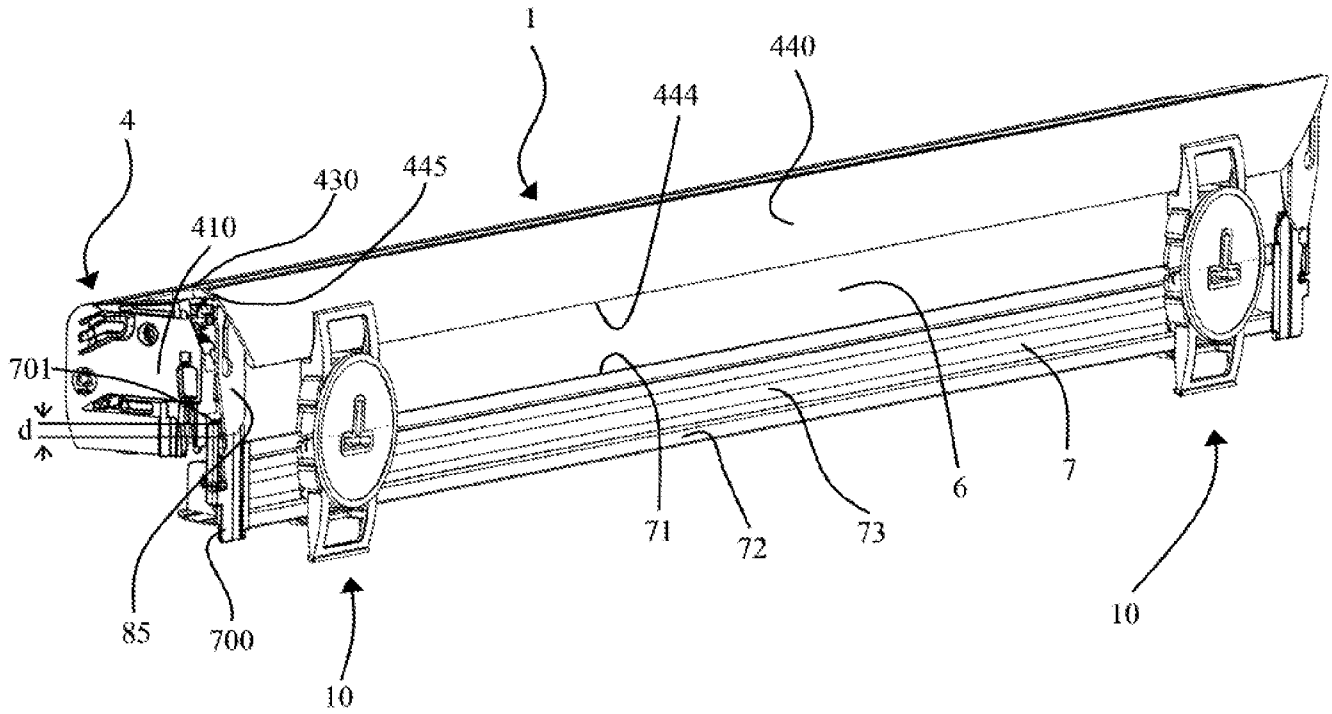


Fig. 1

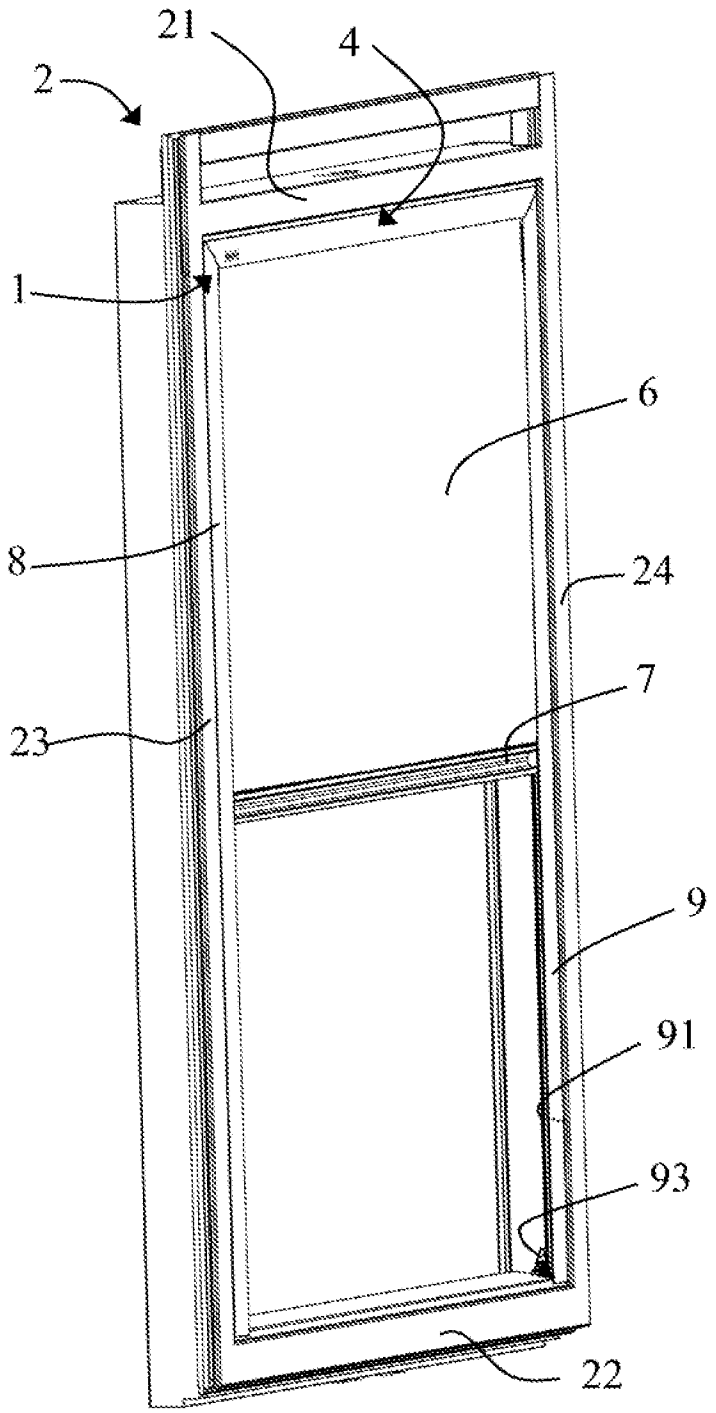


Fig. 2

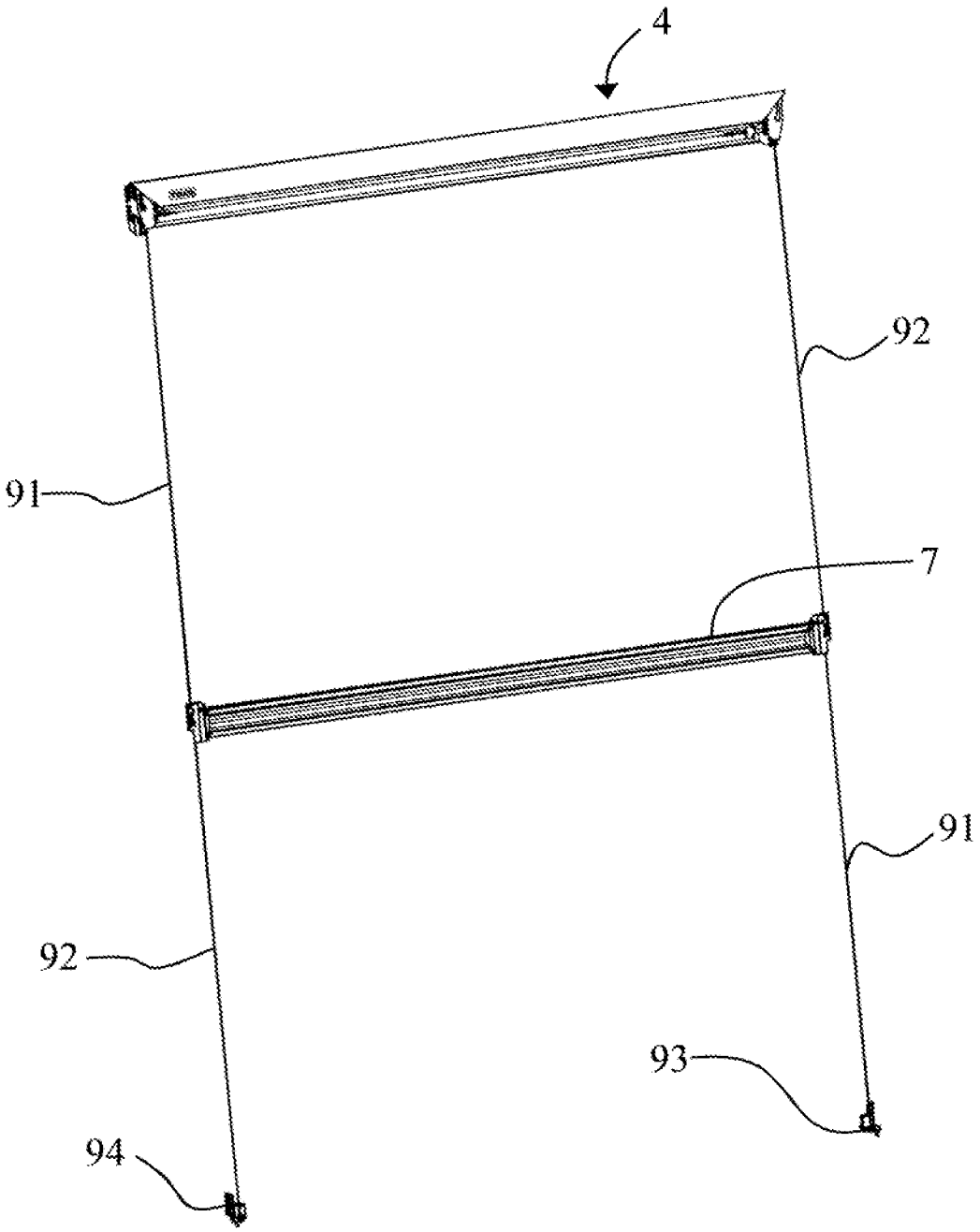


Fig.3

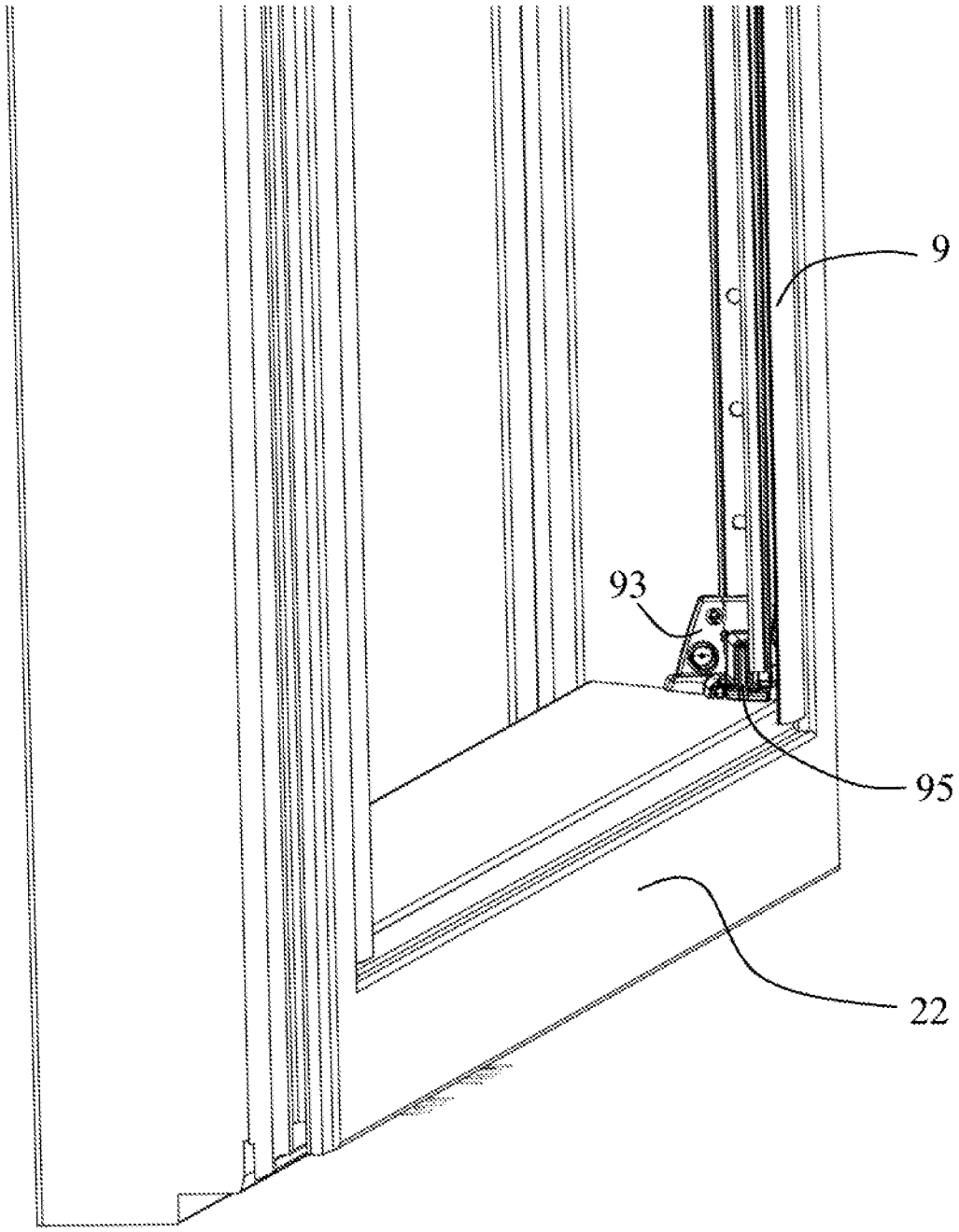


Fig. 4

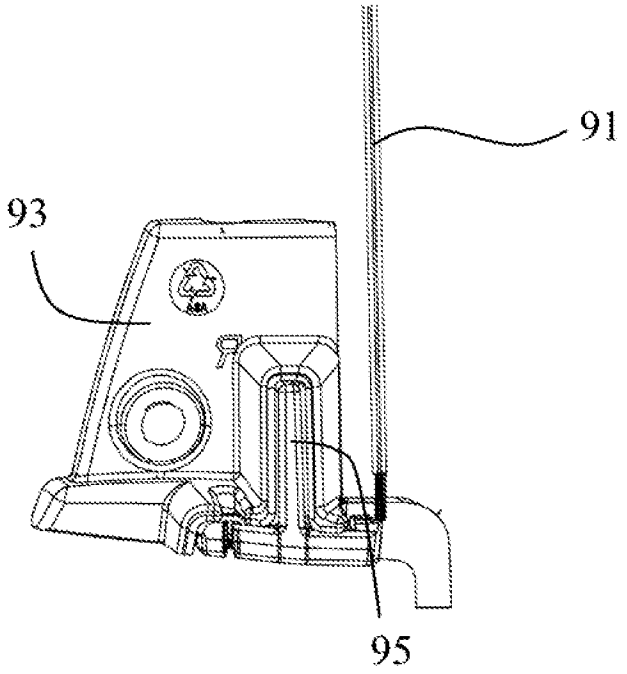


Fig. 5

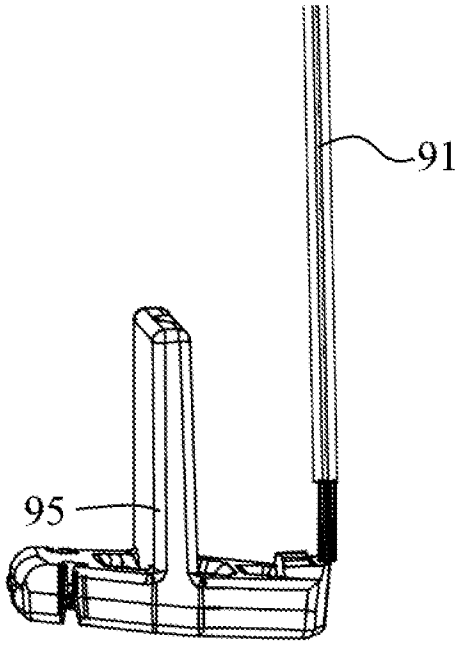


Fig. 6

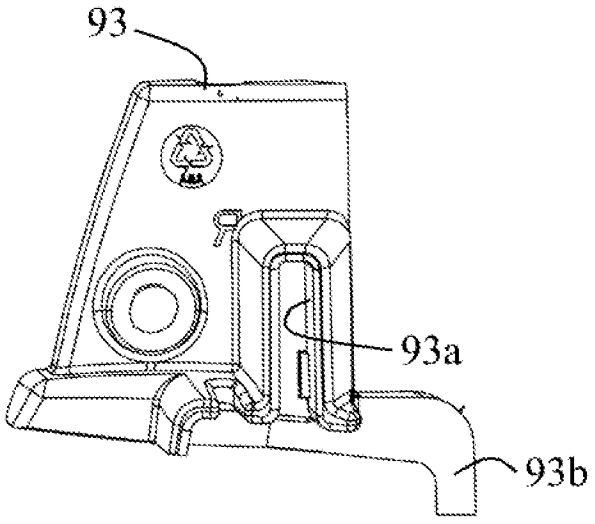


Fig. 7

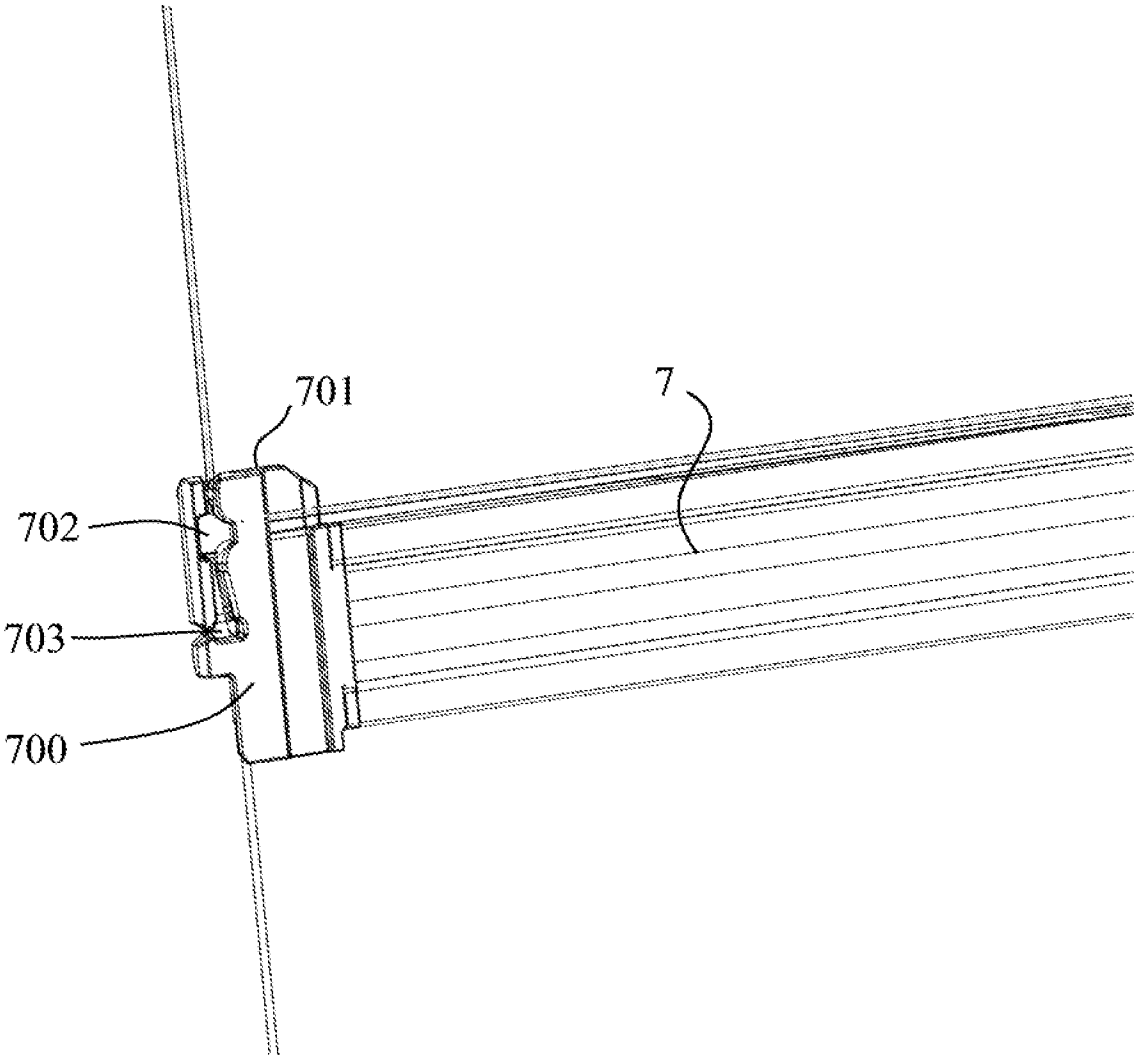


Fig. 8

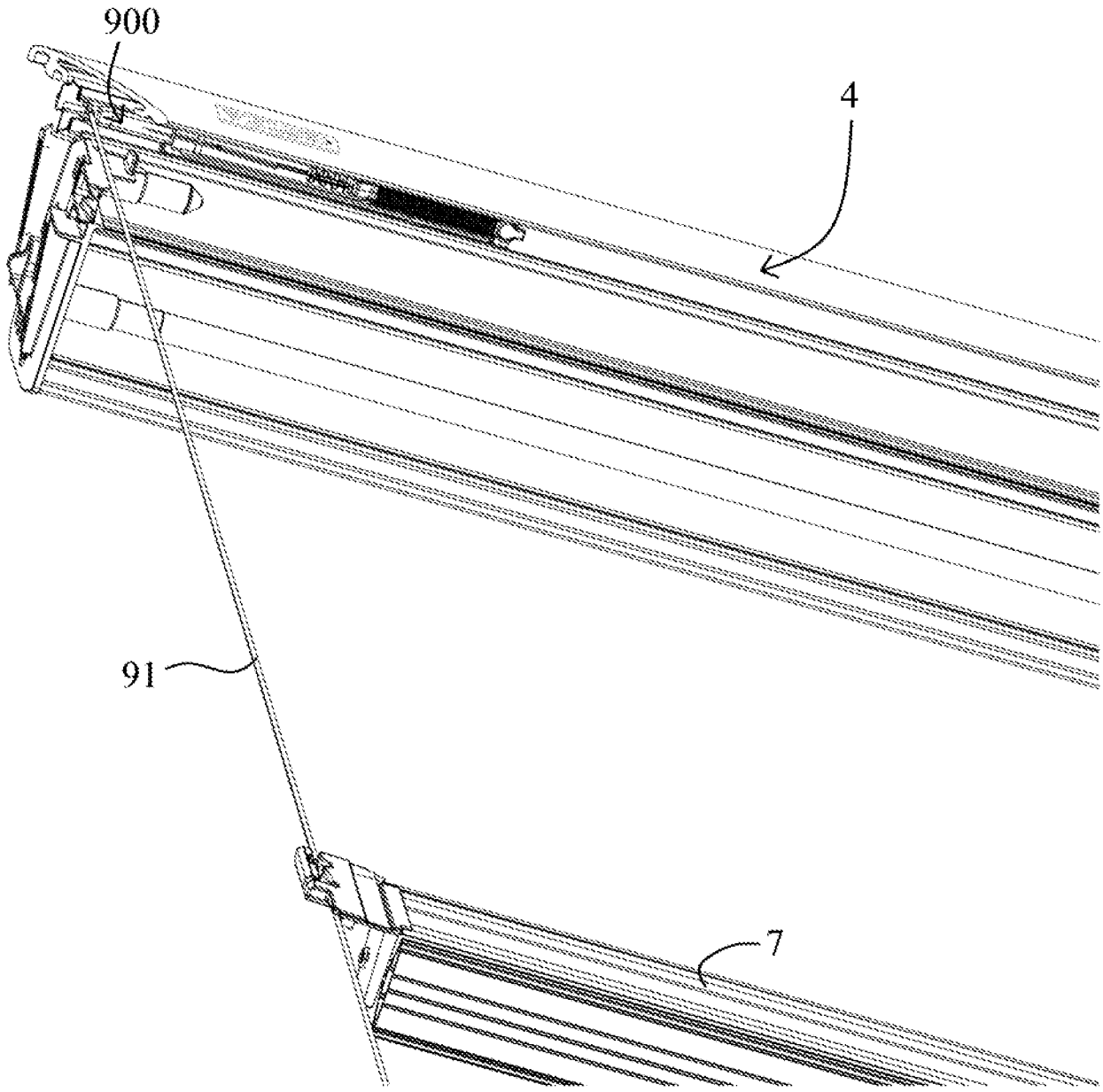


Fig. 9

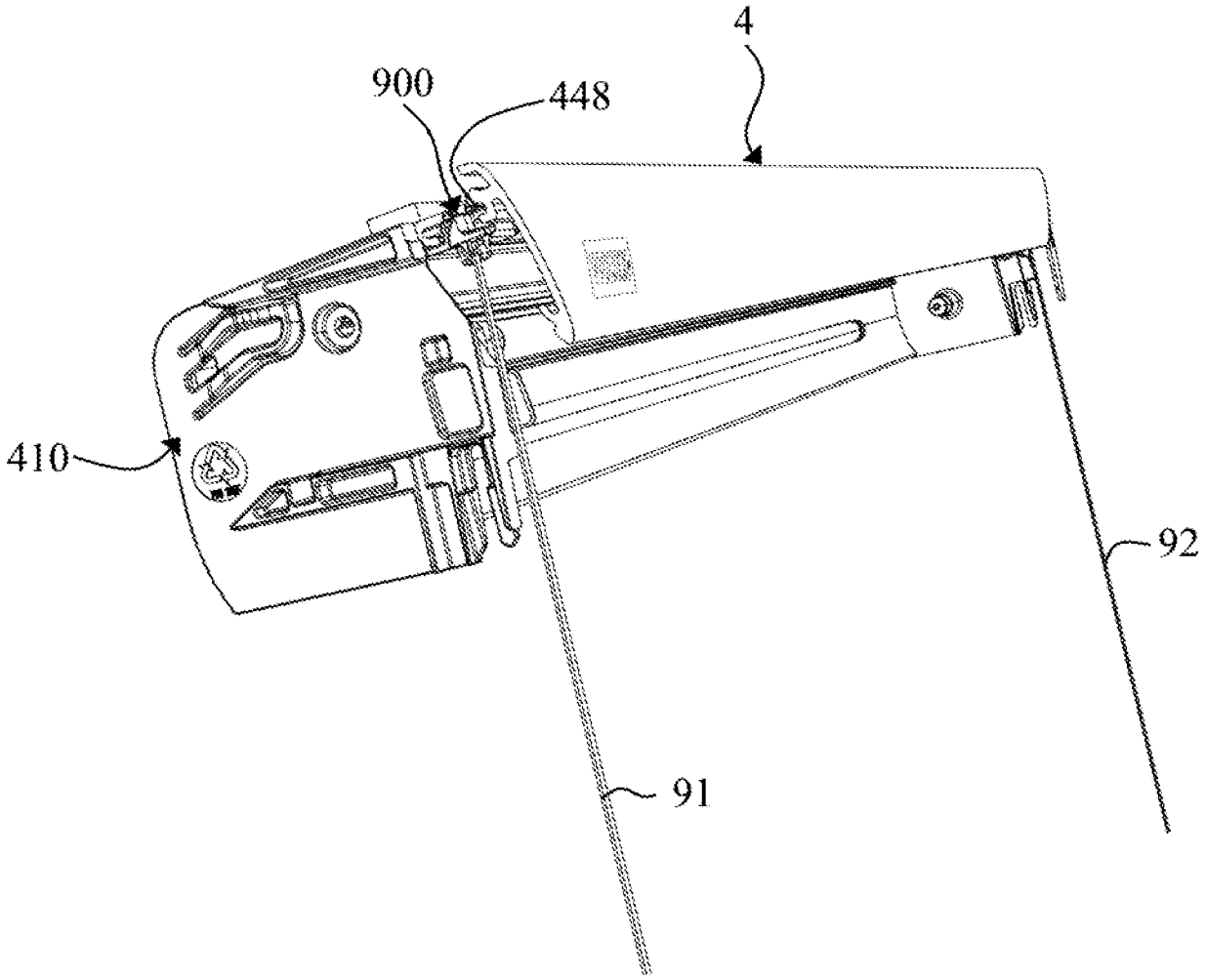


Fig. 10

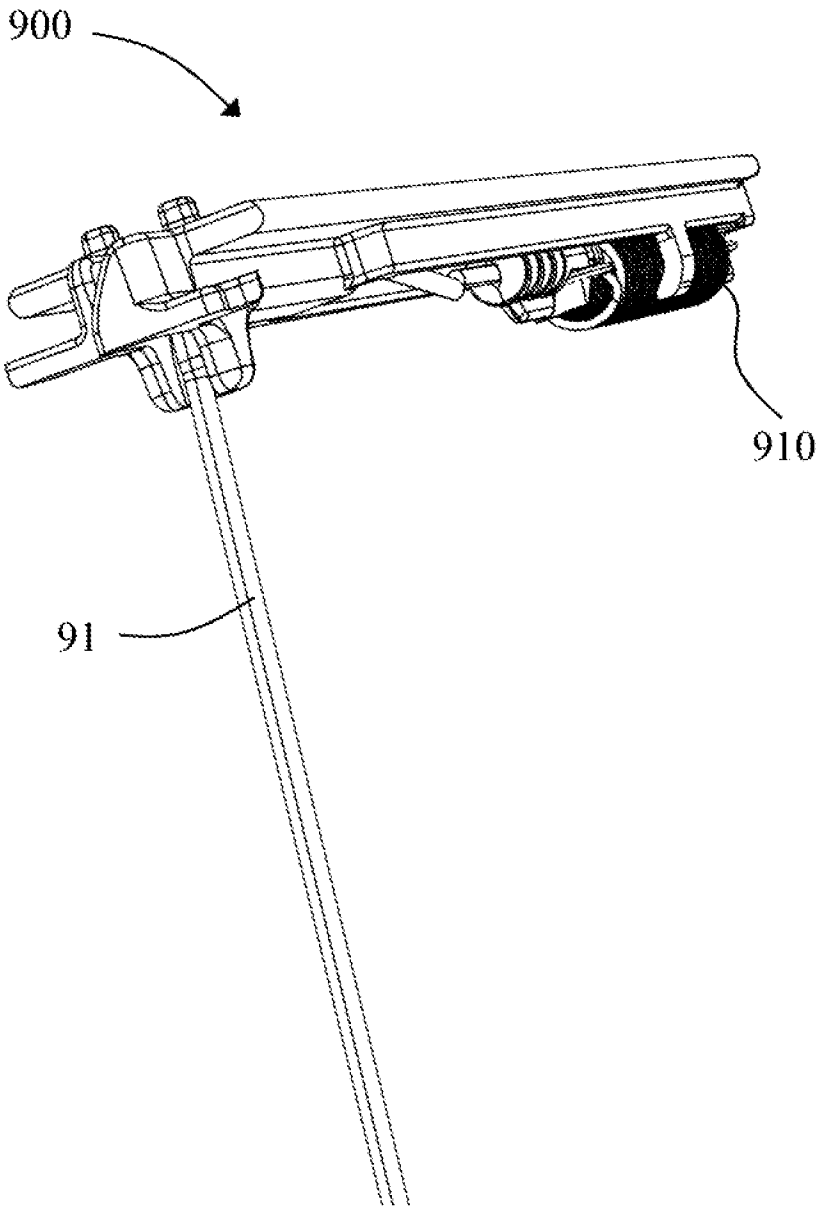


Fig. 11

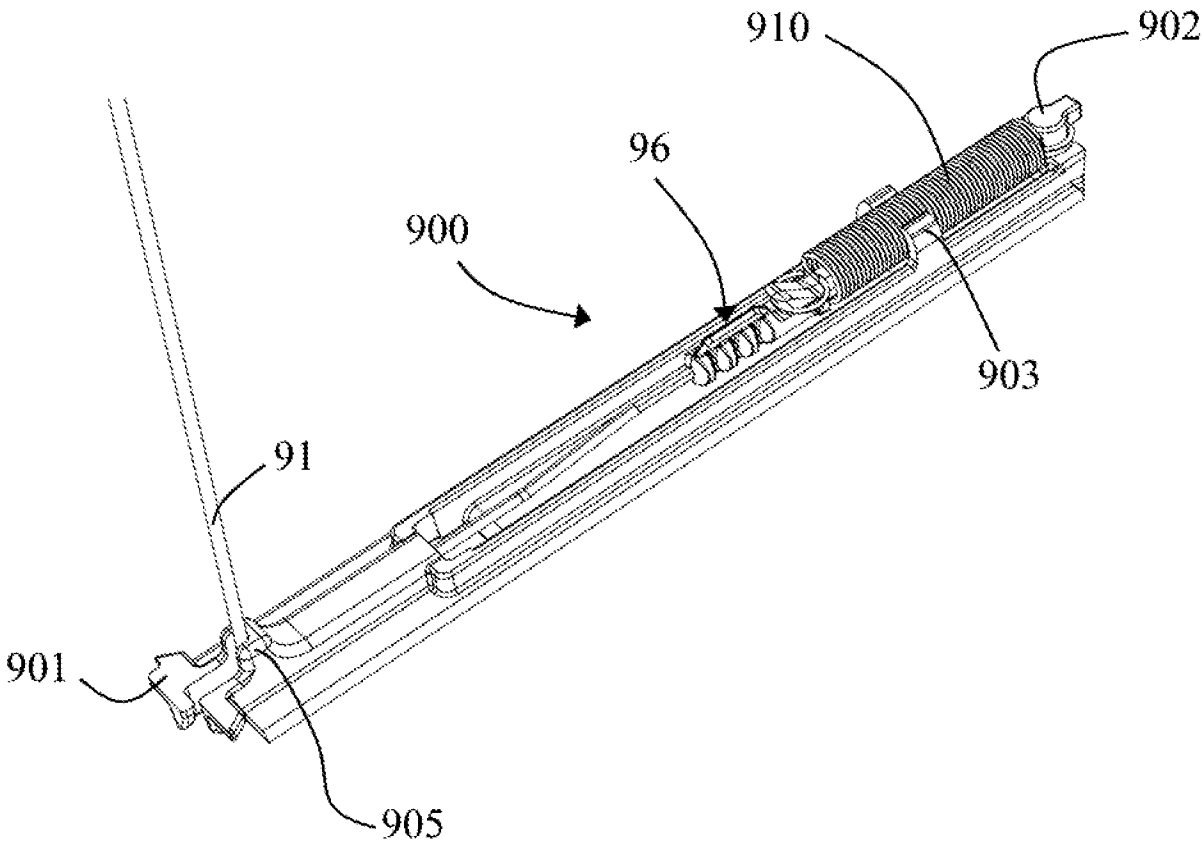


Fig. 12

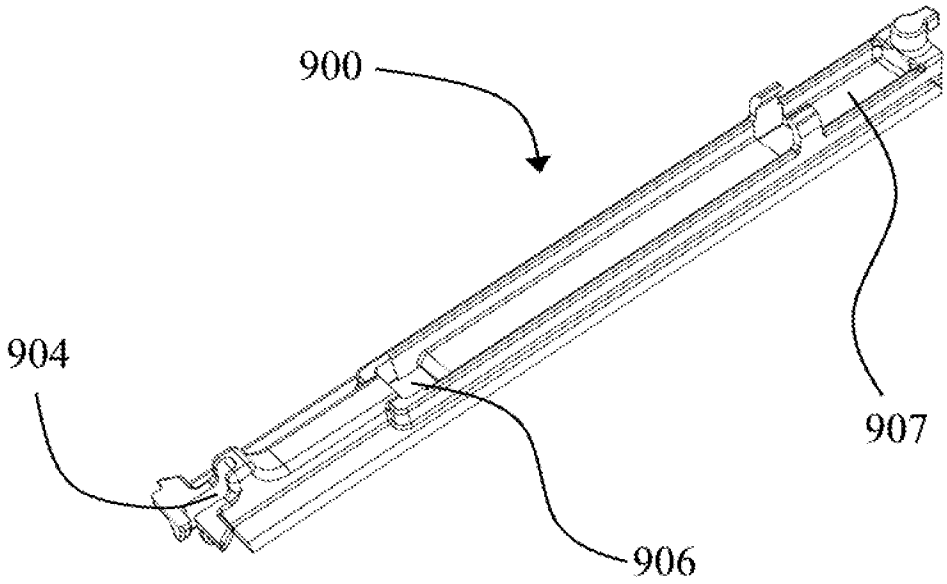


Fig. 13

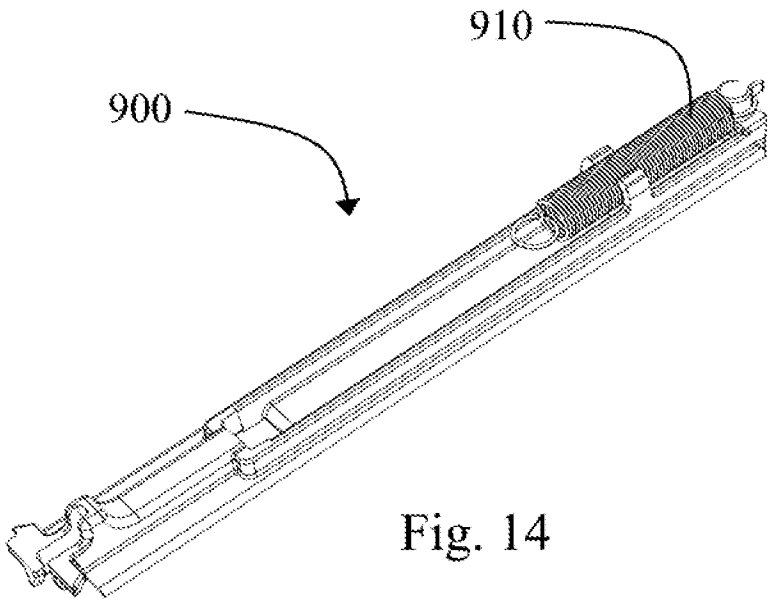


Fig. 14

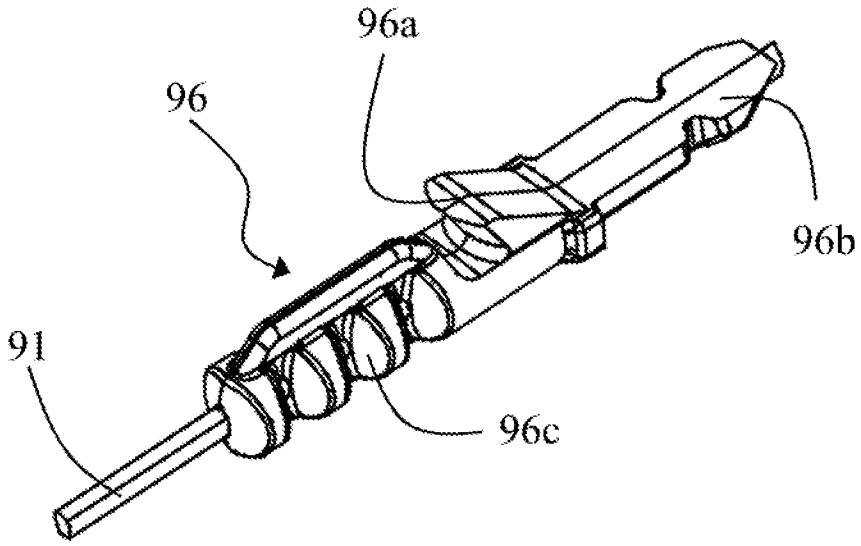


Fig. 15

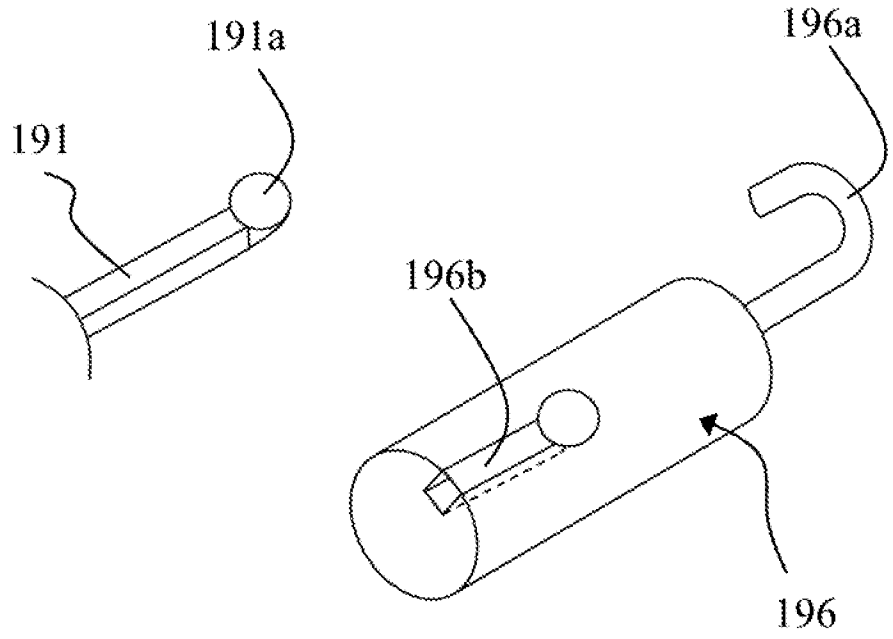


Fig. 16

# INTERNATIONAL SEARCH REPORT

International application No
PCT/DK2007/050158

A. CLASSIFICATION OF SUBJECT MATTER
INV. E06B9/322 E06B9/58

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
E06B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X | EP 1 447 516 A (HUNTER DOUGLAS IND BV [NL]) 18 August 2004 (2004-08-18) paragraphs [0023] - [0031]; claims 1-14; figures 5-7 | 1,2,4,5, 7 |
| A | FR 2 686 372 A (MARITON [FR]) 23 July 1993 (1993-07-23) page 2, lines 8-16; figure 1 page 3, lines 13-17 | 1-8 |
| A | US 2002/056530 A1 (BUTLER EDWARD MAURICE PIERCE [GB]) 16 May 2002 (2002-05-16) paragraph [0028]; figure 3 | 1-8 |

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

| Date of the actual completion of the international search | Date of mailing of the international search report |
|---|---|
| 22 July 2008 | 05/11/2008 |

| Name and mailing address of the ISA/ | Authorized officer |
|---|---|
| European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040,<br>Fax: (+31-70) 340-3016 | Kofoed, Peter |

# INTERNATIONAL SEARCH REPORT

International application No.
PCT/DK2007/050158

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see additional sheet(s)

**Remark on Protest**

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-8

A screening arrangement (1) comprising: a top element (4), a bottom element (7), a screening body (6), and a parallel guidance cord system comprising a set of cords (91, 92), each cord having two ends, said screening arrangement having a supply condition and a condition of use, wherein the screening arrangement is provided with a set of cartridges (900), each cartridge (900) comprising means for engagement with one end of a respective cord (91, 92), and that each cartridge of said set of cartridges (900) is adapted for sliding engagement with a track (448) in-side the top element (4), said set of cartridges (900) being accommodated inside the top element (4) in the supply condition.

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2. claims: 9-17

A parallel guidance cord system comprising a set of cords (91, 92), each cord having two ends, wherein each cord (91) is provided with a first cord end retainer (96) adapted to engage with engagement means of a cartridge (900) of a set of cartridges (900).

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/DK2007/050158

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| EP 1447516 A | 18-08-2004 | NONE | |
| FR 2686372 A | 23-07-1993 | NONE | |
| US 2002056530 A1 | 16-05-2002 | NONE | |